# VS-SD400C...C Series

**Vishay Semiconductors** 

## **Standard Recovery Diodes,** (Hockey PUK Version), 800 A



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A-PUK (DO-200AA)

PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub> 800 A				
Package	A-PUK (DO-200AA)			
Circuit configuration Single				

### **FEATURES**

- Wide current range
- High voltage ratings up to 2400 V
- · High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style A-PUK (DO-200AA)
- Designed and qualified for industrial level
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

### **TYPICAL APPLICATIONS**

- Converters
- Power supplies
- Machine tool controls
- High power drives
- Medium traction applications

MAJOR RATINGS AND CHARACTERISTICS				
PARAMETER	TEST CONDITIONS	VALUES	UNITS	
1		800	A	
I <sub>F(AV)</sub>	T <sub>hs</sub>	55	°C	
I <sub>F(RMS)</sub>		1435	A	
	T <sub>hs</sub>	25	°C	
I <sub>FSM</sub>	50 Hz	8250	A	
	60 Hz	8640	А	
l <sup>2</sup> t	50 Hz	340	kA <sup>2</sup> s	
	60 Hz	311	KA-S	
V <sub>RRM</sub>	Range	400 to 2400	V	
TJ		-40 to +190	°C	

### **ELECTRICAL SPECIFICATIONS**

VOLTAGE RATINGS					
TYPE NUMBER	VOLTAGE CODE	V <sub>RRM</sub> , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V <sub>RSM</sub> , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I <sub>RRM</sub> MAXIMUM AT T <sub>J</sub> = 150 °C mA	
	04	400	500		
	08	800	900		
VS-SD400CC	12	1200	1300	15	
	16	1600	1700	15	
	20	2000	2100		
	24	2400	2500		

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COMPLIANT

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FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum average forward current		180° conduction, half sine wave		800 (425)	А	
at heatsink temperature	I <sub>F(AV)</sub>	Double side (single side) cooled		55 (85)	°C	
Maximum RMS forward current	I <sub>F(RMS)</sub>	25 °C heatsin	k temperature do	uble side cooled	1435	
		t = 10 ms	No voltage		8250	
Maximum peak, one-cycle forward,		t = 8.3 ms	reapplied	Sinusoidal half wave.	8640	A
non-repetitive surge current	I <sub>FSM</sub>	t = 10 ms	50 % V <sub>BBM</sub>		6940	
		t = 8.3 ms	reapplied		7265	
Maximum I <sup>2</sup> t for fusing	l <sup>2</sup> t	t = 10 ms	No voltage	initial $T_J = T_J$ maximum	340	kA <sup>2</sup> s
		t = 8.3 ms	reapplied		311	
		t = 10 ms	50 % V <sub>RRM</sub> reapplied		241	
		t = 8.3 ms			220	
Maximum I <sup>2</sup> √t for fusing	l²√t	t = 0.1 to 10 ms, no voltage reapplied		3400	kA²√s	
Low level value of threshold voltage	V <sub>F(TO)1</sub>	(16.7 % x $\pi$ x $I_{F(AV)} < I < \pi$ x $I_{F(AV)}$ ), $T_J = T_J$ maximum			0.80	V
High level value of threshold voltage	V <sub>F(TO)2</sub>	$(I > \pi \times I_{F(AV)}), T_J = T_J$ maximum			0.83	v
Low level value of forward slope resistance	r <sub>f1</sub>	(16.7 % x $\pi$ x $I_{F(AV)} < I < \pi$ x $I_{F(AV)}$ ), $T_J = T_J$ maximum			0.55	
High level value of forward slope resistance	r <sub>f2</sub>	$(I > \pi x I_{F(AV)}), T_J = T_J maximum$			0.53	mΩ
Maximum forward voltage drop	V <sub>FM</sub>	$I_{pk}$ = 1930 A, $T_J$ = $T_J$ maximum, $t_p$ = 10 ms sinusoidal wave		1.86	V	

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS	
Maximum junction operating temperature range	TJ		-40 to +190	°C	
Maximum storage temperature range	T <sub>Stg</sub>		-55 to +200		
Maximum thermal resistance, junction to heatsink	R <sub>thJ-hs</sub>	DC operation single side cooled	0.163	K/W	
		DC operation double side cooled	0.073	r./ W	
Mounting force, ± 10 %			4900 (500)	N (kg)	
Approximate weight			70	g	
Case style		See dimensions - link on page 5	A-PUK (DO-200AA)		

CONDUCTION ANGLE	SINUSOIDAL CONDUCTION		RECTANGULAR CONDUCTION		TEST CONDITIONS	UNITS
CONDUCTION ANGLE	SINGLE SIDE	DOUBLE SIDE	SINGLE SIDE	DOUBLE SIDE	TEST CONDITIONS	UNITS
180°	0.017	0.018	0.011	0.012		
120°	0.020	0.020	0.020	0.020	$T_J = T_J maximum$	
90°	0.025	0.025	0.027	0.027		K/W
60°	0.037	0.036	0.038	0.038		
30°	0.064	0.062	0.065	0.062		

#### Note

• The table above shows the increment of thermal resistance R<sub>thJ-hs</sub> when devices operate at different conduction angles than DC



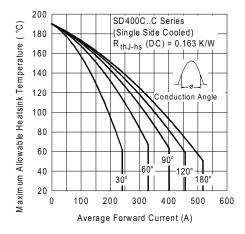


Fig. 1 - Current Ratings Characteristics

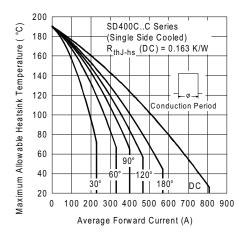


Fig. 2 - Current Ratings Characteristics

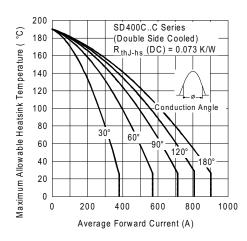


Fig. 3 - Current Ratings Characteristics

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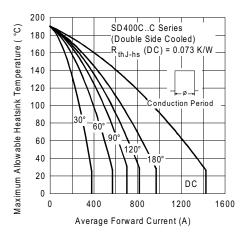


Fig. 4 - Current Ratings Characteristics

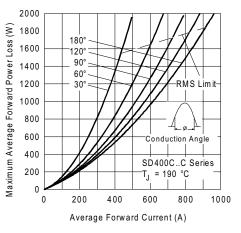


Fig. 5 - Forward Power Loss Characteristics

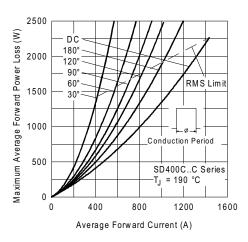


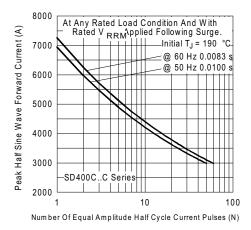
Fig. 6 - Forward Power Loss Characteristics

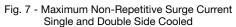
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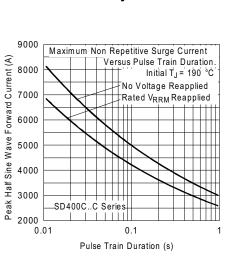
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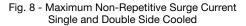
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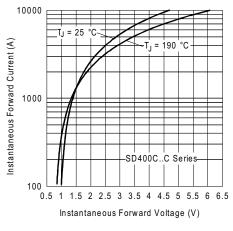
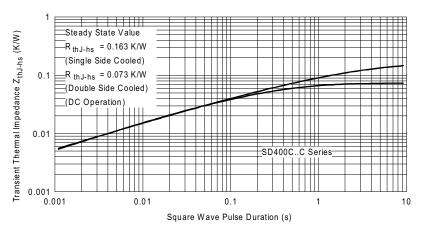


Fig. 9 - Forward Voltage Drop Characteristics





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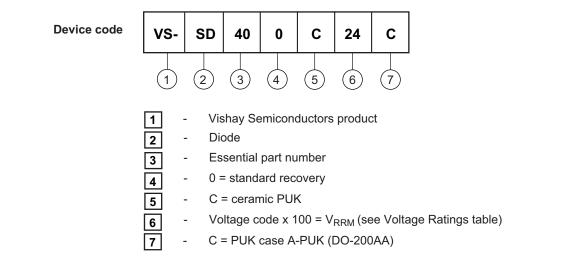


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LINKS TO RELATED DOCUMENTS				
Dimensions	www.vishay.com/doc?95248			

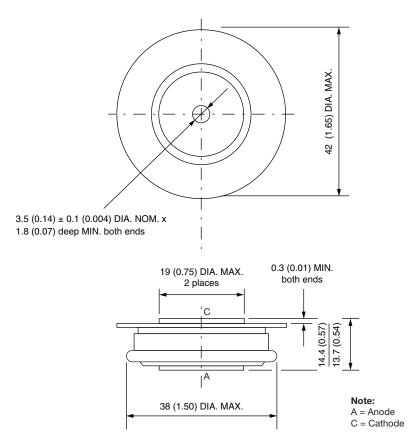
# **Outline Dimensions**



**Vishay Semiconductors** 

**DO-200AA** 

### **DIMENSIONS** in millimeters (inches)



Quote between upper and lower pole pieces has to be considered after application of mounting force (see Thermal and Mechanical Specifications)



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